

## CHILLING UTENSIL AND METHOD OF USE

## BACKGROUND OF THE INVENTION

This invention relates generally to an apparatus and methods for cooling liquid or semi-solid materials. In particular, the invention relates to an apparatus for cooling food products and  
5 methods of using the same.

Food is often prepared in large containers such as cauldrons and vats. These containers hold a considerable amount of food. Often times, it is desirable to store food in the container in which it is prepared. Doing so saves time and energy required to transfer food from the preparation container to a storage container, and avoids loss of valuable food product during this  
10 transfer. In addition, storage containers can be quite costly to purchase and clean. For these reasons, food is often stored in the same container in which it is prepared.

Storing food in preparation containers presents unique problems, however. While hot food must be cooled quickly to avoid microorganisms from growing, large preparation containers are not suited to quickly cool hot food. Merely placing a preparation container filled with hot  
15 food into a cooling device, such as a refrigerator, will not cool the food quickly enough to prevent contamination. Despite being refrigerated, the middle of the food can often stay warm for several hours longer than suggested resulting in undesirable growth of microorganisms.

A variety of techniques and devices have been developed to increase the rate at which food stored in preparation containers cools. The goal of these techniques and devices is to cool  
20 the middle of the food from the inside out. Directly cooling the middle of the food greatly increases the overall cooling rate of the food.

One such technique involves placing ice into the food and stirring. While this technique does cool the food, it requires expenditure of significant resources. Further, this technique adds water to the food when the ice melts. The addition of water to food impacts the taste, texture, and overall impression of the food.

5           One such device is a wand- or paddle-like structure designed to be inserted into a container of food. This device has a body, a neck, and a cap removably attached to the neck. The neck and body are constructed of a single piece of material such as plastic. In practice, a user fills the body of the device with coolant and places the cap on the neck. The device is then refrigerated until the coolant freezes. When water is used as a coolant, the coolant expands into  
10 the neck as it freezes. Users, however, often overfill the device with coolant leaving insufficient unfilled volume to accommodate the coolant as it freezes and expands. Over time, use of this device and overfilling may result in product failure. In an attempt to prevent overfilling, the device may have a fill marking to indicate the level to which the device is intended to be filled with coolant. It is necessary to train and monitor users to ensure proper usage of the device.  
15 This training and monitoring is both time consuming and relatively expensive. Further, many users simply ignore the fill marking and continue to overfill the device.

The current food cooling techniques and chilling utensils suffer from certain drawbacks and limitations. Accordingly, a need exists for a chilling utensil that is easy to use, relatively inexpensive to manufacture, relatively compact, and solves other problems associated with the  
20 existing techniques and chilling utensils.

## SUMMARY OF THE INVENTION

The present invention provides for a chilling utensil and methods of use for cooling hot materials maintained in a container. Specifically, the present invention provides for a chilling utensil with a body having an opening. A closure, such as a top or cap, is removably attached to the opening. The chilling utensil is designed so that the body cannot be filled with coolant, water or otherwise, past the opening. A section of the chilling utensil remains unfilled when the chilling utensil is filled to the opening with unfrozen coolant. This unfilled section provides a volume to accommodate the coolant as the coolant freezes and expands.

The body may take a variety of forms. For example, the body may have an elongated shape such as a paddle, wand, bat, or club or the body may be shaped similar to a gas can or a milk jug. The body may have additional structures, such as ribs, grooves, handles, attachment features, and/or tapered sections to provide specific functionality. The closure may also have additional structures, such as an attachment feature and/or a thermometer retainer. In one embodiment, the closure may provide a gripping surface.

While one possible application of the present invention is in connection with cooling food products, many other applications are possible and references to use in connection with food should not be deemed to limit the uses of the present invention. While certain embodiments are discussed herein, they should not be interpreted as being the only embodiments of the present invention and other embodiments may be created without departing from the present invention. These and other objects and advantages of the present invention will become apparent from the detailed description, claims, and accompanying drawings.

## DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view, partially exploded, of a chilling utensil in accordance with one embodiment of the present invention;

5        FIG. 2 is an elevation view, partially in cross-section, of the chilling utensil of FIG. 1;

FIG. 3 is a left side elevation view of a chilling utensil in accordance with another embodiment of the present invention, with the right side being substantially a mirror image thereof;

FIG. 4 is top plan view of the chilling utensil of FIG.3;

10       FIG. 4A is a perspective view of a chilling utensil in accordance with yet another embodiment of the present invention;

FIG. 4B is a perspective view of a chilling utensil in accordance with another embodiment of the present invention;

15       FIG. 5 is a perspective view, partially exploded, of a chilling utensil in accordance with still another embodiment of the present invention;

FIG. 6 is a left side elevation view of the chilling utensil of FIG. 5, with the right side being substantially a mirror image thereof;

FIG. 7 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

20       FIG. 8 is a left side elevation view of the chilling utensil of FIG. 7, with the right side being substantially a mirror image thereof;

FIG. 9 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 10 is a left side elevation view of the chilling utensil of FIG. 9, with the right side being substantially a mirror image thereof;

5        FIG. 11 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 12 is a left side elevation view of the chilling utensil of FIG. 11, with the right side being substantially a mirror image thereof;

10       FIG. 13 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 14 is a left side elevation view of the chilling utensil of FIG. 13, with the right side being substantially a mirror image thereof;

FIG. 15 is a top perspective view of a chilling utensil in accordance with still another embodiment of the present invention;

15       FIG. 16 is a bottom perspective view of the chilling utensil of FIG. 15;

FIG. 17 is a top perspective view of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 18 is a bottom perspective view of the chilling utensil of FIG. 17;

20       FIG. 19 is a top perspective view of a chilling utensil in accordance with yet another embodiment of the present invention;

FIG. 20 is a bottom perspective view of the chilling utensil of FIG. 19;

FIG. 21 is a top perspective view of a chilling utensil in accordance with still another embodiment of the present invention;

FIG. 22 is a bottom perspective view of the chilling utensil of FIG. 21;

FIG. 23 is a top perspective view of a chilling utensil in accordance with another  
5 embodiment of the present invention;

FIG. 24 is a left side view of a chilling utensil in accordance with yet another embodiment of the present invention, with the right side being substantially a mirror image thereof;

FIG. 25 is a perspective view, partially exploded, of a chilling utensil in accordance with  
10 another embodiment of the present invention;

FIG. 26 is a partial cross-sectional view of the chilling utensil of FIG. 25;

FIG. 27 is a perspective view, partially exploded, of a chilling utensil in accordance with still another embodiment of the present invention;

FIG. 28 is a partial cross-sectional view of the chilling utensil of FIG. 27;

15 FIG. 28A is a fragmentary perspective view of the chilling utensil of FIG. 27 being placed into a certain compatible type of storage;

FIG. 29 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 30 is a partial cross-sectional view of the chilling utensil of FIG. 29;

20 FIG. 31 is a perspective view, partially exploded, of a chilling utensil in accordance with yet another embodiment of the present invention;

FIG. 32 is a partial cross-sectional view of the chilling utensil of FIG. 31;

FIG. 33 is a perspective view, partially exploded, of a chilling utensil in accordance with still another embodiment of the present invention;

FIG. 34 is a partial cross-sectional view of the chilling utensil of FIG. 33;

5        FIG. 34A is a fragmentary perspective view of the chilling utensil of FIG. 33 being placed into a certain compatible type of storage;

FIG. 35 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 36 is a partial cross-sectional view of the chilling utensil of FIG. 35;

10       FIG. 37 is a perspective view, partially exploded, of a chilling utensil in accordance with still another embodiment of the present invention;

FIG. 38 is a partial cross-sectional view of the chilling utensil of FIG. 37;

FIG. 39 is a perspective view, partially exploded, of a chilling utensil in accordance with yet another embodiment of the present invention;

15       FIG. 40 is a partial cross-sectional view of the chilling utensil of FIG. 39;

FIG. 41 is a perspective view, partially exploded, of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 42 is a partial cross-sectional view of the chilling utensil of FIG. 41;

20       FIG. 43 is a perspective view of a portion of a chilling utensil in accordance with yet another embodiment of the present invention;

FIG. 44 is a partial cross-sectional view of the portion of the chilling utensil shown in FIG. 43;

FIG. 45 is a perspective view of a portion of a chilling utensil in accordance with another embodiment of the present invention;

5        FIG. 46 is a partial cross-sectional view of the portion of the chilling utensil shown in FIG. 45;

FIG. 47 is a perspective view of a portion of a chilling utensil in accordance with one embodiment of the present invention;

FIG. 48A is a partial cross-sectional view of the chilling utensil of FIG. 47;

10       FIG. 48B is perspective view of a portion of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 48C is perspective view of a portion of a chilling utensil in accordance with still another embodiment of the present invention;

15       FIG. 48D is perspective view of a portion of a chilling utensil in accordance with yet another embodiment of the present invention;

FIG. 48E is perspective view of a portion of a chilling utensil in accordance with another embodiment of the present invention;

FIG. 49 is a perspective view of a portion of a chilling utensil in accordance with one embodiment of the present invention;

20       FIG. 50 is a partial cross-sectional view of the chilling utensil of FIG. 49;



FIG. 51 is a perspective view of a portion of a chilling utensil in accordance with one embodiment of the present invention;

FIG. 52 is a partial cross-sectional view of the chilling utensil of FIG. 51;

FIG. 53 is a perspective view of a portion of a chilling utensil in accordance with one  
5 embodiment of the present invention;

FIG. 54 is a partial cross-sectional view of the chilling utensil of FIG. 53;

FIG. 55 is a perspective view of a portion of a chilling utensil in accordance with one embodiment of the present invention;

FIG. 56 is a partial cross-sectional view of the chilling utensil of FIG. 55;

10 FIG. 57 is a perspective view of a portion of a chilling utensil in accordance with one embodiment of the present invention; and,

FIG. 58 is a partial cross-sectional view of the chilling utensil of FIG. 57.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

15 Illustrative embodiments of a chilling utensil (identified generally as 30) in accordance with the present invention are shown in FIGS. 1 through 58. While the invention may be susceptible to embodiment in different forms, there are shown in the drawings, and herein are described in detail, certain illustrative embodiments with the understanding that the present disclosure is to be considered an exemplification of the principles of the invention, and is not  
20 intended to limit the invention to those specific embodiments illustrated and described herein.

Additionally, features illustrated and described with respect to one embodiment could be used in connection with other embodiments.

The present invention provides a chilling utensil 30 that is inserted, either completely or partially and at any angle, into a container such as a pot, pan, or tray to cool the contents therein.

5 The chilling utensil 30, by design, cannot be overfilled with coolant. Specifically, the chilling utensil 30 has a body 32 with at least one opening 36. A closure, such as a top 34 or cap 60, is removably attached to the opening 36. The chilling utensil 30 is designed so that the body 32 cannot be filled with coolant, water or otherwise, past the opening 36. A section 35 of the chilling utensil remains unfilled when the chilling utensil 30 is filled to the opening 36 with  
10 unfrozen coolant. This unfilled section 35 provides a volume to accommodate the coolant as the coolant freezes and expands.

The body 32 may take a variety of forms. For example, in the embodiments shown in FIGS. 1, 2, 5-14, and 25-58, the body 32 has an elongated shape such as a paddle, wand, bat, or club. In the embodiments shown in FIGS. 3, 4, and 15-24, the body 32 is shaped similar to a gas  
15 can or a milk jug. In other embodiments, the body 32 is shaped as disclosed in United States Patent No. 5,058,396 to Faiola. In the embodiments shown in FIGS. 3, 4, 7-12, and 15-24, the body 32 has at least one handle 68. The handle 68 may be integrated into the body 32 or formed of a separate piece. In one embodiment, the body 32 is configured so that the chilling utensil 30 may be placed under a faucet or spout and filled at different angles. In one embodiment, the  
20 body 32 of the chilling utensil 30 is configured to provide a relatively large surface area of contact with the contents of the container. For example, the body 32 may be shaped or

configured with spiral shapes, helixes, twists, indentions, or protrusions. In one embodiment shown in FIGS. 1-4, the body 32 has at least one ridge 38 and one groove 40, preferably oriented substantially longitudinally, running substantially the length of the main part of the body.

Preferably, the body 32 is configured to meet safety and health standards, such as those set forth  
5 by the National Safety Foundation.

In embodiments shown in FIGS. 1-4, 15-24, 26, 28, 30, 32, 34, 36, 38, 40 and 42, the body 32 has a base 44 or 62, configured so that the chilling utensil 30 can be set upright on the base 44 or 62. In one embodiment shown in FIGS. 1 and 2, a portion 42 of the body 32, or the entire body 32, may be tapered towards the base 44. In other embodiments shown in FIGS. 3, 4,  
10 and 15-24, the base 44 or 62 has at least one extension 64. The extension 64 provides for increased stability and assists in positioning the chilling utensil 30 in a container.

As discussed above, the body 32 has an opening 36. The opening 36 can be any size or shape. Preferably, however, the opening is sized to accommodate the insertion of ice cubes of a variety of shapes and sizes. The body 32 may taper towards the opening 36 or may have a  
15 uniform shape with an opening 36 positioned therein. A top 34 or cap 60 is removably attached to the opening 36. The top 34 or cap 60 may be attached to the opening 36 in a wide variety of manners, including but not limited to snap fit or screwed on. In one embodiment shown in FIGS. 1 and 2, the top 34 has an engagement section 38 that screws onto a threaded portion 49 around the opening 36. A gasket 46 may be provided between the top 34 and the opening 36 to create an  
20 improved seal therebetween. Such a gasket 46 need not, however, be attached to the top 34.

As discussed above, the chilling utensil 30 has an unfilled section 35 for coolant to expand into as it freezes. The unfilled section 35 accounts for between about 5 to 50% of the total volume of the chilling utensil 30. In one embodiment shown in FIGS. 1-4, the unfilled section 35 accounts for about 10% of the total volume. In one embodiment shown in FIGS. 1 and 2, the top 34 is configured to provide the unfilled section 35 for the coolant to expand into. In embodiments shown in FIGS. 1, 2, 5, 6, 25-42, the top 34 is at least partially hollow. In the embodiments shown in FIGS. 3, 4, 7-24, the unfilled section 35 is provided in the body 32. In embodiments shown in FIGS. 3, 4, 9-13, and 15-24, the unfilled section 35 is at least partially provided for in the handle 68. In the embodiment shown in FIGS. 13 and 14, the cap 60 has an extension 70. The extension 70 displaces a certain volume of coolant when the cap 60 is fit onto the body 32. The displaced volume may be force out of the opening 35 or may be drained from cap 60 and/or extension. The result is that inserting the extension into the chilling utensil creates an unfilled area 35 even if the chilling utensil 30 had been filled past a fill marker, something that is very important where under trained or unskilled workers are employed.

The top 34 or cap 60 of the chilling utensil 30 may be configured to provide a variety of additional features. These features may be formed as part of the top 34 or cap 60, or attached thereto. In one embodiment shown in FIGS. 1, 2, 5, 6, and 25-58, the top 34 is grasped by a user. In the embodiments shown in FIGS. 1, 2, 5, 6, and 25-58, the top 34 may act as a gripping surface. In certain embodiments, the top 34 may have an improved gripping surface. For example, the top 34 may have one or a series of ribs, ridges, or textured features. As shown in FIGS. 33 and 34, the top 34 may also be shaped to facilitate actuation and handling. In the

embodiments shown in FIGS. 1, 2, 5, and 6, the top 34 has a gripping ridge 52. In one embodiment shown in FIGS. 1 and 2, the top 34 provides for an improved gripping surface while meeting health and safety standards. In the embodiments shown in FIGS. 1, 2, 41, and 42, the top 34 has a thermometer retainer 56. As shown in FIG 2, a thermometer 58 may be inserted and positioned in the thermometer retainer 56. The thermometer 58 may measure the temperature of the coolant inside the chilling utensil 30 and/or the environment surrounding the chilling utensil 30.

In embodiments shown in FIGS 1, 2, and 26-58, the chilling utensil 30 has an attachment feature 54. The attachment feature 34 may take a variety of forms and may be used to attach the chilling utensil 30 to a variety of structure such as wire racks, hooks, or knobs commonly found in work areas in a variety of manners. In embodiments shown in FIGS. 25, 26, 29-30, and 33-38, the attachment feature 54 is a hook-like extension that engages a structure 55 in the top 34 and another structure in a work area. In embodiments shown in FIGS. 1, 2, 27, 28, 43-47, and 49-58, the attachment feature 54 is a hook-like structure formed as a portion of the top 34 or fixed to the top 34. In embodiments shown in FIGS. 31, 32, 39-42, and 48A and B, the attachment feature 54 is attached to the top 34, either removably or permanently. In one embodiment shown in FIG. 1, the attachment feature 54 or structure 55 can be removed without affecting the cooling performance of the chilling utensil 30. In embodiments shown in FIGS. 28A and 34A, the chilling utensil 30 may be removably engaged to a wire rack or similar structure 100 by placing the chilling utensil 30 below a shelf 101 on the rack. The chilling utensil 30 is positioned so that the attachment feature 54 is able to slide between the wires 103 in the shelf 101 when the chilling

utensil 30 is raised. The chilling utensil 54 is raised and twisted, thereby allowing the attachment feature 54 to engage at least one wire in the shelf. In embodiments shown in FIGS. 25 and 29, the attachment feature 54 can interact with an "S" hook or the like that, in turn, may then be suspended from the wire rack.

5           The chilling utensil 30 may be used in a variety of manners to cool the contents of a variety of container. Preferably prior to use, the chilling utensil is filled with water or other liquid and then placed in a freezer or the like to achieve a degree of "coldness." Alternatively, the chilling utensil may be filled with ice cubes and/or cold water prior to use. In one embodiment, a chilling utensil 30 is inserted substantially upright into a container. In another  
10           embodiment, a chilling utensil 30 is inserted at an angle into a container. Multiple chilling utensils 30 may be inserted into a single container. Multiple chilling utensils 30 may also be inserted into multiple trays as disclosed in United States Patent No. 5,058,396. The chilling utensil 30 may be placed into a container and left to cool the contents of the container. Alternatively, the chilling utensil 30 may be placed into the container and used to mix, stir, or  
15           otherwise move the contents of the container.

          The chilling utensil 30 of the present invention may have other applications aside from use in connection with food products. Further, the invention may be implemented in a variety of configurations, using certain features or aspects of the several embodiments described herein and others known in the art. Thus, although the invention has been herein shown and described in  
20           what is perceived to be the most practical and preferred embodiments, it is to be understood that the invention is not intended to be limited to the specific features and embodiments set forth

above. Rather, it is recognized that modifications may be made by one of skill in the art of the invention without departing from the spirit or intent of the invention and, therefore, the invention is to be taken as including all reasonable equivalents to the subject matter described herein.